

AMENDMENTS TO THE CLAIMS:

Claim 1. (Currently amended) An image scanner for use in reading image information, comprising:

conveying means for conveying a manuscript including said image information to be read on a predetermined reading position of a conveying route;

a first light source which is located at one side of said conveying route and which emits light onto said predetermined reading position from said one side;

a second light source which is located at another side of said conveying route being opposite to said first light source, and which emits light onto said predetermined reading position from said another side opposite to said one side;

image information reading means for reading said image information included in said manuscript at said predetermined reading position on said conveying route by light-electricity conversion; and

light source switching control means for controlling light source switching between said first and said second light sources to read said image information included in said manuscript, said light source switching control means rendering only said first light source ON when said image information is defined by a transmitting light transmitting through said manuscript, said light source switching control means rendering only said second light source ON when said image information is defined by a reflected light reflected by said manuscript;

an upper housing unit in which at least said image information reading means is contained; and

a lower housing unit positioned below said upper housing unit.

Claim 2. (Previously presented) An image scanner for use in reading image information, comprising:

 a driving side conveying roll for conveying a manuscript including said image information to be read past a stationary reading position;

 a driven side conveying roll which is located above said driving side conveying roll and which rotates by rolling-contact with said driving said conveying roll;

 a manuscript sensor for detecting said manuscript when a head of said manuscript arrives at a position near the rolling-contact position between said driving side conveying roll and said driven side conveying roll;

 conveying roll driving means for starting a rotation of said driving side conveying roll when said manuscript sensor has detected an arrival of said head of said manuscript;

 light-electricity conversion means for carrying out light-electricity conversion of said image information per one line in a main-scanning direction of said manuscript from a side of one surface of said manuscript at said stationary reading position on a conveying route when said driving said conveying roll is started to rotate by said conveying roll driving means and said manuscript is thereby started to move toward the sub-scanning direction between said driving side and said driven side conveying rolls, said stationary reading position existing downstream of said conveying route from the rolling-contact position by a predetermined distance;

 a first light source for emitting light onto said stationary reading position from a side of

another surface of said manuscript opposite to said one surface thereof;

a second light source for emitting light onto said stationary reading position from a side of the same surface of said manuscript as said one surface thereof; and

light source switching control means for selectively rendering either said first light source or said second light source ON to read said image information included in said manuscript, dependent on whether said image information is defined by a reflected light reflected by said manuscript or by a transmitting light transmitting through said manuscript.

Claim 3. (Original) An image scanner as claimed in claim 2, further comprising an upper housing unit in which said driven side conveying roll, said second light source, and said light-electricity conversion means are contained, and a lower housing unit in which said driving side conveying roll and said first light source are contained, said upper housing unit being separated from said lower housing unit, wherein said upper housing unit is capable of reading image information independently.

Claim 4. (Original) An image scanner as claimed in claim 3, wherein a lower electric component included in said lower housing unit is controlled by an upper electric component included in said upper housing units are connected by an attachable and removable connector with each other.

Claim 5. (Original) An image scanner as claimed in claim 2, further comprising an upper

housing unit in which said driven side conveying roll, said second light source, and said light-electricity conversion means are contained, and a plurality of mirrors located between said light-electricity conversion means and said reading position, wherein a light path is turned by each of said a plurality of mirrors therebetween.

Claim 6. (Original) An image scanner as claimed in claim 2, further comprising an encoder which generates a pulse every time said driven said conveying roll makes a predetermined number of rotations.

Claim 7. (Canceled)

Claim 8. (Previously presented) An image scanner for use in reading image information, comprising:

a driving side conveying roll for conveying a manuscript including said image information to be read past a stationary reading position;

a driven side conveying roll which is located above said driving side conveying roll and which rotates by rolling-contact with said driving side conveying roll;

a manuscript sensor for detecting said manuscript when a head of said manuscript arrives at a position near the rolling-contact position between said driving said conveying roll and said driven side conveying roll;

conveying roll driving means for starting a rotation of said driving side conveying roll

when said manuscript sensor has detected an arrival of said head of said manuscript;

light-electricity conversion means for carrying out light-electricity conversion of said image information per one line in a main-scanning direction of said manuscript from a side of one surface of said manuscript at said stationary reading position on a conveying route when said driving side conveying roll is started to rotate by said conveying roll driving means and said manuscript is thereby started to move toward the sub-scanning direction between said driving side and said driven side conveying rolls, said stationary reading position existing downstream of said conveying route from the rolling-contact position by a predetermined distance;

a first light source for emitting light onto said stationary reading position from a side of another surface of said manuscript opposite to said one surface thereof;

a second light source for emitting light onto said stationary reading position from a side of the same surface of said manuscript as said one surface thereof;

light source selection input means for inputting whether either said first light source or said second light source should be selected, dependent on whether said image information is defined by a reflected light reflected by said manuscript or by a transmitting light transmitting through said manuscript, and

light source switching control means for selectively rendering either said first light source or said second light source ON to read said image information included in said manuscript, responsive to a result of selection by said light source selection input means.

Claim 9. (Original) An image scanner as claimed in claim 8, further comprising an upper

housing unit in which said driven side conveying roll, said second light source, and said light-electricity conversion means are contained, and a lower housing unit in which said driving side conveying roll and said first light source are contained, said upper housing unit being separated from said lower housing unit, wherein said upper housing unit is capable of reading image information independently.

Claim 10. (Original) An image scanner as claimed in claim 9, wherein a lower electric component included in said lower housing unit is controlled by an upper electric component included in said upper housing unit, and wherein said upper and said lower housing units are connected by an attachable and removable connector with each other.

Claim 11. (Original) An image scanner as claimed in claim 8, further comprising an upper housing unit in which said driven side conveying roll, said second light source, and said light-electricity conversion means are contained, and a plurality of mirrors located between said light-electricity conversion means and said reading position, wherein a light path is turned by each of said a plurality of mirrors therebetween.

Claim 12. (Original) An image scanner as claimed in claim 8, further comprising an encoder which generates a pulse every time said driven side conveying roll makes a predetermined number of rotations.

Claim 13. (Canceled)

Claim 14. (Original) An image scanner for use in reading image information, comprising:

a driving side conveying roll for conveying a manuscript including said image information to be read;

a driven side conveying roll which is located above said driving side conveying roll and which rotates by rolling-contact with said driving side conveying roll;

a manuscript sensor for detecting said manuscript when a head of said manuscript arrives at a position near the rolling-contact position between said driving side conveying roll and said driven side conveying roll;

conveying roll driving means for starting a rotation of said driving side conveying roll when said manuscript sensor has detected an arrival of said head of said manuscript;

light-electricity conversion means for carrying out light-electricity conversion means for carrying out light-electricity conversion of said image information per one line in a main-scanning direction of said manuscript from a side of one surface of said manuscript at a reading position on a conveying route when said driving side conveying roll is started to rotate by said conveying roll driving means and said manuscript is thereby started to move toward the sub-scanning direction between said driving side and said driven side conveying rolls, said reading position existing downstream of said conveying route from the rolling-contact position by a predetermined distance;

a first light source for emitting light onto said reading position from a side of another

surface of said manuscript opposite to said one surface thereof;

a second light source for emitting light onto said reading position from a side of the same surface of said manuscript as said one surface thereof; and

manuscript type judging means which respectively renders said first and said second light sources exclusively ON on a condition that said manuscript is existing at said reading position to compare respective signal levels after conversion by light-electricity conversion means, and which thereby judge whether said manuscript is such a type of manuscript as read by a transmitting light transmitting through said manuscript or such an another type of manuscript as read by a reflected light reflected by said manuscript; and

light source switching control means for selectively rendering either said first light source or said second light source ON to read said image information included in said manuscript, responsive to a result of judgement by said manuscript type judging means.

Claim 15. (Original) An image scanner as claimed in claim 14, further comprising an upper housing unit in which said driven said conveying roll, said second light source, and said light-electricity conversion means are contained, and a lower housing unit in which said driving side conveying roll and said first light source are contained, said upper housing unit being separated from said lower housing unit, wherein said upper housing unit is capable of reading image information independently.

Claim 16. (Original) An image scanner as claimed in claim 15, wherein a lower electric

component included in said lower housing unit is controlled by an upper electric component included in said upper housing unit, and wherein said upper and said lower housing units are connected by an attachable and removable connector with each other.

Claim 17. (Original) An image scanner as claimed in claim 14, further comprising an upper housing unit in which said driven side conveying roll, said second light source, and said light-electricity conversion means are contained, and a plurality of mirrors located between said light-electricity conversion means and said reading position, wherein a light path is turned by each of said a plurality of mirrors therebetween.

Claim 18. (Original) An image scanner as claimed in claim 14, further comprising an encoder which generates a pulse every time said driven side conveying roll makes a predetermined number of rotations.

Claim 19. (Canceled).

Claim 20. (Original) An image scanner as claimed in claim 14, wherein said image scanner, after said manuscript type judging means have judged whether said manuscript is such a type of manuscript as read by a transmitting light transmitting through said manuscript or such another type of manuscript as read by a reflected light reflected by said manuscript, reversibly moves the manuscript until a head of the manuscript reaches said reading position and then starts

conveying the manuscript in said sub-scanning direction to read the manuscript.

Claim 21. (Previously presented) An image scanner, comprising:

a driving side conveying roll that conveys a manuscript;

a driven side conveying roll located above said driving side conveying roll;

a manuscript sensor that detects when said manuscript arrives at a position near the rolling-contact position between said driving side conveying roll and said driven side conveying roll;

a conveying roll driver that rotates said driving side conveying roll when said manuscript sensor detects an arrival of said head of said manuscript;

a light-electricity converter that converts light including image information to electricity in a main-scanning direction of said manuscript from a surface of said manuscript when said driving conveying roll rotates to move said manuscript toward a sub-scanning direction between said driving side and said driven side conveying rolls, a reading position being downstream in a conveying route from the rolling-contact position by a predetermined distance;

a first light source that emits light onto another surface of said manuscript;

a second light source that emits light onto said surface of said manuscript;

a light source switching controller that selectively renders either said first light source or said second light source ON to read said image information based on whether said image information is defined by light reflected by said manuscript or by light transmitting through said manuscript; and

an encoder which generates a pulse every time said driven side conveying roll makes a predetermined number of rotations, and wherein said image scanner reads one line of said image information in synchronization with said pulse, said reading of said image information starting when said pulse is generated, said reading of said image information terminating when a predetermined time has passed after said pulse.

Claim 22. (Previously presented) An image scanner, comprising:

a driving side conveying roll that conveys a manuscript including an image;
a driven side conveying roll which is located above said driving side conveying roll and which rotates with said driving side conveying roll;
a manuscript sensor that detects said manuscript when a head of said manuscript arrives at a position near a rolling-contact position between said driving side conveying roll and said driven side conveying roll;
a conveying roll driver that rotates said driving side conveying roll when said manuscript sensor detects said manuscript;
a light-electricity converter that converts light including image information to electricity in a main-scanning direction of said manuscript from a side of said manuscript when said driving side conveying roll rotates to move said manuscript in the sub-scanning direction between said driving side and said driven side conveying rolls, a reading position being downstream in a conveying route from the rolling-contact position by a predetermined distance;
a first light source that emits light onto another surface of said manuscript;

a second light source that emits light onto said surface of said manuscript;
a light source selection inputter that inputs whether said first light source or said second light source is selected based upon whether said image information is defined by light reflected by said manuscript or by light transmitting through said manuscript;
a light source switching controller that selectively renders either said first light source or said second light source ON to read said image information in response to a result of said input from said light source selection inputter; and
an encoder which generates a pulse every time said driven side conveying roll makes a predetermined number of rotations, and wherein said image scanner reads one line of said image information in synchronization with said pulse, said reading of said image information starting when said pulse is generated, said reading of said image information terminating when a predetermined time has passed after said pulse.

Claim 23. (Previously presented) An image scanner, comprising:

a driving side conveying roll that conveys a manuscript including an image;
a driven side conveying roll which is located above said driving side conveying roll and which rotates with said driving side conveying roll;
a manuscript sensor that detects said manuscript when a head of said manuscript arrives at a position near a rolling-contact position between said driving side conveying roll and said driven side conveying roll;
a conveying roll driver that rotates said driving side conveying roll when said manuscript

sensor detects said manuscript;

a light-electricity converter that converts light including image information to electricity in a main-scanning direction of said manuscript from a side of said manuscript when said driving side conveying roll rotates to move said manuscript in the sub-scanning direction between said driving side and said driven side conveying rolls, a reading position being downstream in a conveying route from the rolling-contact position by a predetermined distance;

a first light source that emits light onto another surface of said manuscript;

a second light source that emits light onto said surface of said manuscript;

a manuscript type judger which respectively renders said first and said second light sources exclusively ON based on whether said manuscript is read by light transmitting through said manuscript or read by light reflected by said manuscript based upon a comparison of respective signal levels from said light-electricity converter;

a light source switching controller that selectively renders either said first light source or said second light source ON in response to said judgement by said manuscript type judger; and

an encoder which generates a pulse every time said driven side conveying roll makes a predetermined number of rotations, and wherein said image scanner reads one line of said image information in synchronization with said pulse, said reading of said image information starting when said pulse is generated, said reading of said image information terminating when a predetermined time has passed after said pulse.

Claim 24. (Previously presented) The scanner of claim 1, wherein said predetermined reading

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DOCKET NO. KN-43-US

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position is stationary.